IN THE CLAIMS

1. (Withdrawn) A method for separating a semiconductor device from a substrate in a fixture with a shearing element wherein the semiconductor device is attached to the substrate by solder connections to form an assembly, the method comprising:

using the shearing element to apply a loading force to the semiconductor device;

loading the assembly of the substrate and the semiconductor device into the fixture with the shearing element proximate the semiconductor device; and

heating the solder connections of the assembly in the fixture proximate the substrate to a predetermined temperature by applying a heat source to a surface of the substrate distal from the semiconductor device.

2. (Withdrawn) The method of claim 1, wherein said shearing element is a heatsink in thermal communication with the semiconductor device.

3. (Withdrawn) The method of claim 1, wherein a temperature gradient is established between the substrate, solder connections, and semiconductor device, said temperature gradient causing the solder connections to the substrate to become liquidus before the solder connections to the semiconductor device.

4. (Withdrawn) The method of claim 2, wherein said heatsink is configured as a means for applying said loading force to the semiconductor device.

5. (Withdrawn) The method of claim 1, wherein said loading force is a gravitational force acting on the shearing element.

6. (Withdrawn) The method of claim 1, wherein said applying said heat source to said surface of the substrate distal from the semiconductor device causes separation of the substrate with the solder connections before separation of the semiconductor device with the solder connections while the solder is in a solid state.

7. (Withdrawn) The method of claim 1 wherein the predetermined temperature is below the melting temperature of the solder at which shearing of the solder connections occurs.

8. (Withdrawn) The method of claim 1, wherein the substrate is loaded into a seat in an upper element of the fixture with the chip extending through a window therein,

the shearing element is configured to adjustably clamp to edges defining the semiconductor device and bias the device away from the substrate, and

the shearing element is configured as a heatsink for the device when heat is applied to the substrate.

9. (Currently Amended) An apparatus for removing a circuit chip from a substrate wherein the chip is secured to a substrate by solder connections, comprising:

a shearing element configured to apply a loading force to the chip; and

a fixture having a loading element for placing the substrate with the chip onto the fixture, wherein the solder connections intermediate the chip and the substrate are heated to a predetermined temperature by applying a heat source to a surface of the substrate distal from the chip,

wherein the shearing element is releasably clamped to the chip using a drive screw to operate a plurality of claws that clamp edges defining the chip.

10. (Currently Amended) The apparatus of claim 9 wherein:

the substrate is suspended~~loaded~~ into a seat of~~in an~~ the loading~~upper~~ element with the chip extending through a window therein;

~~the shearing element is releasably clamped to the chip using a drive screw to operate claws that clamp edges defining the chip;~~ and

a loading force is provided by the shearing element ~~for~~ biasing the chip away from the substrate.

11. (Original) The apparatus of claim of claim 9, wherein said shearing element provides a gravitational force on the chip and is a heatsink in thermal communication with the chip.

12. (Original) The apparatus of claim 9, wherein a temperature gradient is established between the substrate, solder connections, and chip, said temperature gradient causing the solder connections to the substrate to become liquidus before the solder connections to the chip.

13. (Original) The apparatus of claim 9, wherein said heat source is a controlled heat source applied to said surface of the substrate.

14. (Original) The apparatus of claim 9, wherein the predetermined temperature is below the melting temperature of the solder at which shearing of the solder connections occurs.

15. (Original) The apparatus of claim 9, wherein the fixture includes a nest located below the window adapted and located for catching the chip sheared from the substrate.

16. (Currently Amended) An apparatus for separating a semiconductor device from a substrate wherein the semiconductor device is attached to the substrate by solder connections to form an assembly, comprising:

a shearing element for applying a loading force to separate the device from the substrate to which into a loading position under a fixture it is urged;

a loading element for placing the assembly of the substrate and the semiconductor device into said fixture with a window therethrough for the semiconductor device with the shearing element in thermal contact with the semiconductor device and armed for shearing the semiconductor device from the substrate,

wherein the shearing element is releasably clamped to the semiconductor device using a drive screw to operate a plurality of claws that clamp edges defining the chip.

17. (Original) The apparatus of claim 16, wherein the shearing element comprises a heatsink configured to provide said loading force and a temperature gradient between the device and the substrate when heat is applied to the substrate.

18. (Original) The apparatus of claim 16, wherein the shearing element is weighted heatsink affixed to the device and applies said loading force based on a weight of the shearing element.

19. (Currently Amended) The apparatus of claim 16, wherein the shearing element comprises:

a yoke block threadably engaged with said drive screw through one of two opposing sides normal to said contiguous sides defining said yoke block;

a plurality of jaws each pivotally coupled to a corresponding side of contiguous sides defining said yoke block; and

~~a drive screw threadably engaged with said yoke block through one of two opposing sides normal to said contiguous sides defining said yoke block;~~

wherein, each of said plurality of jaws ~~each~~ is configured to clamp edges defining the semiconductor device to said yoke block when said drive screw is manipulated.

20. (Original) The apparatus of claim 19, wherein said plurality of jaws each includes an inclined cam surface engaged with a drive cam axially disposed on said drive screw, said drive cam configured to operably pivot each of said plurality of jaws when said drive screw is turned translating said drive cam along an axis defining said drive screw.